In the Claims

1. (Currently Amended) A method of fabricating a microelectromechanical system, said method comprising:

providing a substrate comprising a handle layer of silicon, a device layer of silicon and a sacrificial layer of silicon disposed between the ~~said~~ handle layer and the ~~said~~ device layer, the handle layer being separated from the sacrificial layer by a first dielectric layer, the sacrificial layer being separated from the device layer by a second dielectric layer;

forming an isolation trench that extends through at least the sacrificial layer, the isolation trench defining a release area in the sacrificial layer;

forming a micromechanical structure in the ~~said~~ device layer by etching the silicon of the device layer; and

removing at least a portion of the ~~said~~ sacrificial layer of silicon underlying the ~~said~~ micromechanical structure to release the ~~said~~ micromechanical structure for movement.

2. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 1, wherein the ~~said~~ silicon of the ~~said~~ sacrificial layer is single crystal silicon.

3. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 1, wherein ~~said forming step further comprises: forming an~~ the isolation trench ~~that~~ extends through ~~at least~~ the ~~said~~ device layer.

Claim 4 (Cancelled)

5. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 14, wherein the ~~said~~ silicon of the ~~said~~ device layer is polysilicon.

6. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 14, wherein the ~~said~~ silicon of the ~~said~~ device layer is single crystal silicon.

Claim 7 (Cancelled)

8. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 14, wherein at least a portion of the sacrificial layer of silicon is removed by ~~said removing step further comprising~~:

placing a photoresist layer on top of the ~~said~~ device layer over at least the ~~said~~ micromechanical structure;

forming release etch holes through the ~~said~~ photoresist layer and the ~~said~~ second dielectric layer; and etching the ~~said~~ sacrificial layer of silicon underlying the ~~said~~ micromechanical structure.

9. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 8, wherein the ~~said~~ first dielectric layer is used as an etch stop for the ~~said~~ etching of the ~~said~~ sacrificial layer.

10. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 8, wherein the ~~said~~ second dielectric layer is used as an etch stop for the ~~said~~ etching of the ~~said~~ sacrificial layer.

11. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 8, wherein the ~~said~~ isolation trench is used as an etch stop for the ~~said~~ etching of the ~~said~~ sacrificial layer.

12. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 14, wherein the ~~said~~ handle layer has actuation electrodes formed thereon.

13. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 12, ~~said forming step~~ further comprising:

forming via posts extending through at least the ~~said~~ sacrificial layer to contact the ~~said~~ actuation electrodes.

14. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 13, wherein the ~~said~~ via posts additionally extend through the ~~said~~ device layer.

15. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 14, wherein actuation electrodes are formed on the bottom of the ~~said~~ sacrificial layer.

16. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 1, ~~said method~~ further comprising:

bonding a silicon-on-insulator wafer to a handle wafer of silicon to create the ~~said~~ substrate.

17. (Currently Amended) A method of fabricating a microelectromechanical system, ~~as per claim 1, said method further~~ comprising:

providing a substrate comprising a handle layer of silicon, a device layer of silicon and a sacrificial layer of silicon disposed between the handle layer and the device layer;

bonding a first silicon-on-insulator wafer to a handle wafer of silicon and removing a handle layer of the ~~said~~ first silicon on insulator wafer to create the ~~said~~ sacrificial layer; ~~and~~

bonding a second silicon on insulator wafer to the ~~said~~ sacrificial layer and removing a handle layer of the ~~said~~ second silicon on insulator wafer to create the ~~said~~ device layer;

forming a micromechanical structure in the device layer; and

removing at least a portion of the sacrificial layer of silicon underlying the micromechanical structure to release the micromechanical structure for movement.

18. (Currently Amended) A method of fabricating a microelectromechanical system, as per claim 1, ~~said method further~~ comprising:

providing a substrate comprising a handle layer of silicon, a device layer of silicon and a sacrificial layer of silicon disposed between the handle layer and the device layer;

bonding a first wafer of silicon to a second wafer of silicon and~~;~~ bonding a third wafer of silicon to the ~~said~~ first wafer of silicon~~; and~~ to create the ~~whereby said~~ substrate ~~is created~~;

forming a micromechanical structure in the device layer; and

removing at least a portion of the sacrificial layer of silicon underlying the micromechanical structure to release the micromechanical structure for movement.

19. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 1, wherein the ~~said~~ micromechanical structure is any one of a micro-optical device, an inertial sensor, or an actuator.

20. (Currently Amended) The ~~A~~ method of fabricating a microelectromechanical system~~,~~ ~~as per~~ as claimed in claim 19, wherein the ~~said~~ micro-optical device is a micromirror.

21. (Currently Amended) The ~~A~~ method of ~~releasing~~ fabricating a microelectromechanical ~~structure for movement~~ system as claimed in claim 1, ~~said micromechanical structure etched in a silicon device layer, said method~~ further comprising:

etching ~~a~~ the silicon sacrificial layer disposed between the ~~said~~ micromechanical structure and ~~a~~ the silicon handle layer.

22. (Currently Amended) The ~~A~~ method of ~~releasing~~ fabricating a micromechanical ~~structure for movement~~ system~~, as per~~ as claimed in claim 21, wherein the ~~said~~ micromechanical structure is a micromirror.

Claims 23-42 (Cancelled)